

What is claimed is:

1           1. A fluid bearing base and workstation apparatus for  
2           facilitating movement of a heavy load such as a workbench,  
3           cabinet or equipment, the apparatus comprising:

4                   a) a base comprising a substantially planar  
5           backplate;

6                   b) a retractable, inflatable, substantially unitary  
7           membrane connected to said backplate to form a plurality  
8           of fluid bearings; and

9                   c) means for providing pressurized fluid to inflate  
10          said membrane.

1           2. The fluid bearing base and workstation apparatus in  
2           accordance with claim 1, further comprising a bonding layer  
3           attached to said membrane and to said backplate at  
4           predetermined locations, providing for fluid passage  
5           therebetween.

1           3. The fluid bearing base and workstation apparatus in  
2           accordance with claim 1, wherein said means to provide  
3           pressurized fluid is supported by said backplate.

1           4. The fluid bearing base and workstation apparatus in  
2 accordance with claim 1, further comprising a stencil and  
3 dimple assembly connected through said membrane and to said  
4 base for protecting said membrane and for distributing said  
5 load.

1           5. The fluid bearing base and workstation apparatus in  
2 accordance with claim 3, wherein said means to provide  
3 pressurized fluid comprises one of the group: a blower,  
4 compressor, and pump.

1           6. The fluid bearing base and workstation apparatus in  
2 accordance with claim 2, wherein said bonding layer comprises  
3 adhesive film.

1           7. The fluid bearing base and workstation apparatus in  
2 accordance with claim 1, wherein said apparatus further  
3 comprises fluid distribution means operatively connected to  
4 said backplate and to each of said plurality of fluid bearings  
5 for providing pressurized fluid thereto.

1           8. The fluid bearing base and workstation apparatus in  
2 accordance with claim 7, wherein said fluid distribution means  
3 comprises a backplate manifold.

1           9. The fluid bearing base and workstation apparatus in  
2 accordance with claim 8, further comprising fluid flow control  
3 means operatively connected to said backplate manifold.

1           10. The fluid bearing base and workstation apparatus in  
2 accordance with claim 7, wherein said plurality of fluid  
3 bearings forms a grid thereof.

1           11. The fluid bearing base and workstation apparatus in  
2 accordance with claim 1, wherein said means for providing  
3 pressurized fluid is selected from the group: an on-board  
4 pressurized fluid tank, an on-board blower, an on-board  
5 compressor, an external compressor, an external pressurized  
6 fluid source, and an external pump.

1           12. The fluid bearing base and workstation apparatus in  
2 accordance with claim 1, wherein said fluid is selected from  
3 one of the group: gas, air, compressed air, water and oil.

1           13. The fluid bearing base and workstation apparatus in  
2 accordance with claim 1, further comprising:

3                 d) a component selected from the group: workbench,  
4 cabinet and equipment, said component being supported by  
5 and attached to said base.

1           14. The fluid bearing base and workstation apparatus in  
2 accordance with claim 13, further comprising:

3           e) means for providing electrical power to said  
4 means for providing pressurized fluid.

1           15. The fluid bearing base and workstation apparatus in  
2 accordance with claim 1, further comprising:

3           d) means for providing electrical power to said  
4 means for providing pressurized fluid.

1           16. In a fluid bearing base and workstation apparatus  
2 for facilitating movement of a heavy workbench, cabinet or  
3 equipment having a base comprising a substantially planar  
4 backplate, and a retractable, inflatable, substantially  
5 unitary membrane, the improvement comprising a load support  
6 integral to said backplate for supporting and facilitating  
7 movement of a load over a surface.

1           17. A fluid bearing base and workstation apparatus for  
2 facilitating movement of a heavy load such as a workbench,  
3 cabinet or equipment, the apparatus comprising:

4           a) a base comprising a backplate;

5           b) a retractable, inflatable, substantially unitary  
6 membrane connected to said backplate to form at least one  
7 fluid bearing; and

8           c) means for providing pressurized fluid to inflate  
9 said membrane, selected from the group: an on-board  
10 pressurized fluid tank, an on-board blower, an on-board  
11 compressor, an external compressor, an external  
12 pressurized fluid source, and an external pump.

1           18. The fluid bearing base and workstation apparatus in  
2 accordance with claim 17, further comprising:

3           d) a component selected from the group: workbench,  
4 cabinet and equipment, said component being supported by  
5 and attached to said base.

1           19. The fluid bearing base and workstation apparatus in  
2 accordance with claim 18, further comprising:

3           e) means for providing electrical power to said  
4 means for providing pressurized fluid.

1           20. The fluid bearing base and workstation apparatus in  
2 accordance with claim 17, further comprising a bonding layer  
3 attached to said membrane and to said backplate at  
4 predetermined locations, providing for fluid passage  
5 therebetween.